RECEIVED
AUG 0 7 2003
DIV. OF OIL, GAS & MINING

Mining Five Mile clay, July 2002, in the East end of the pit.–Interstate uses about 15,000 tons of this clay annually.

Notice of Intention to Revise Mining Operations

M/045/006
Five Mile Mine

Interstate Brick Company

January 2003

Five mile mine clay is one of the clays used in making Interstate's tan or buff colored Brick, known as Desert Sand. This is Interstate's number one selling color and is used primarily on commercial, schools, and public buildings. On most of these jobs the color of the brick is the natural fired color of the clay. Products made using this clay are shipped nationwide.

John Hewitt, Interstate Brick

Table of Contents

Introduction:

This Notice of Intention to Revise Mining Operations is being made in accordance with a Notice of Potential Non-Compliance & Division Directive, sent by DOGM to Interstate Brick on Nov. 4, 2002. The primary concern is that Interstate's most recent mining activity, done in 2002, may have been outside the permit area boundary. At present there is not a clearly marked boundary in the field. This Notice of Intention to Revise Mining Operations is to clarify the boundary area. Upon approval of this Notice Interstate will mark this area in the field so that it can be easily verified.

The mine's disturbed area and associated material piles were surveyed by Interstate using a newly acquired GPS receiver. The permitting history of Interstate's 5-mile holdings that are currently being mined was researched. ArcView geographic information software was purchased so all available mapping information could be utilized. Interstate requested an extension to the original Dec. 4th due date for this notice in order to have more time to learn and utilize the software and collect information. An extension to January 4th was granted.

Interstate's 5 Mile Mine plan was last revised or amended in 1994. The reason for the '94 Amendment was to move the active mine to its current location. Drilling and blasting of the current area was begun in 1993 (exploration E/045/096). The mine face today is still contained within the area stated in the 1994 Notice. The 1994 plan map shows that mining was to take place in 3 phases. Mining activity through 2002 has established a working mine face that runs the length of the 3 phases. The pit's area of disturbance is still contained within the area of these 3 phases.

This plan will show the current areas of disturbance and material piles, how the mining is expected to progress in the next 3-5 years, Interstate's reclamation plan, and a permit area boundary.

FORM MR-REV
(Revised February 2001)

FOR DOGM USE ONLY:
File #:(M/S)_____/_____-__( )
Approved: (mm/dd/yy) ____/____/____
Bond Adjustment: ($)_____

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
1594 West North Temple Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
Telephone: (801) 538-5291 Fax: (801) 359-3940

NOTICE OF INTENTION TO REVISE MINING OPERATIONS

When an operator intends to revise a mining operation, a **Notice of Intention to Revise Mining Operations** shall be filed with the Division. The notice must include all information, concerning the revision, that would have been required if it had been included in the original Notice of Intention (NOI). Ideally, the revision application should be a "stand-alone" document and include all information necessary to conduct a complete review.

"REVISION" means a **significant change** to the approved Notice of Intention to Conduct Mining Operations, which will increase the amount of land affected or alter the location and type of onsite surface facilities such that the nature of the reclamation plan will differ substantially from the approved Notice of Intention. Revisions require a formal public notice of tentative approval and may require a change in the amount of reclamation surety.

"AMENDMENT" is an **insignificant change** to the approved Notice of Intention. An amendment requires Division approval, but does not require public notice.

The Division will determine whether a request for change is significant or insignificant on an individual case-by-case basis.

PLEASE NOTE: When applicable, reference to previously approved information contained in the original NOI can be used (identify volume #'s, section, page #, plate/map #'s, & date of submittal). If possible, please attach appropriate copies of the referenced material as part of the application for revision.

Where possible, please format the application to revise mining operations (e.g., text, maps, tables, figures, etc.) to allow direct insertion into the original NOI as replacement pages, or as a separate addendum to the approved NOI.

The operator is encouraged to use this form as a guide only. Please use extra sheets as necessary to complete each section that follows.

The following information must be included as part of the application to revise mining operations:

I. GENERAL INFORMATION (Rule R647-4-104)

1. **Name of Operator/Applicant:** Interstate Brick Co.

2. **Name of Company/Corporation:** Pacific Coast Building Products

3. **Address:** 9780 South 5200 West, West Jordan UT, 84088

4. **Phone:** (801) 280-5200 **Fax:** (801) 282-5321

5. **Name of Mine/Project:** 5 Mile Pass Mine

6. **Previously Assigned File Number:** (M) / 045 /006
   *from original Notice of Intention (NOI)

7. **Location of Proposed Activities:**

   COUNTY Tooele

   TOWNSHIP 7 S, RANGE 3 W,

   SECTION(S) 4 (Identify to 1/4, 1/4 section)

8. **Ownership of Land Surface:**

Private (Fee) X Owners Name(s): Interstate Brick Co.

State of Utah ____ Public Domain (BLM) ____ National Forest (USFS)____

9. **Ownership of Minerals:**

Private (Fee) X Owners Names(s): Interstate Brick Co.

State of Utah ____ Public Domain (BLM) ____ National Forest (USFS) ____

10. **Utah Mining Claim Number(s):** n/a

11. **Utah State Lease Numbers(s):** n/a

II. MAPS, DRAWINGS & PHOTOGRAPHS (Rule R647-4-105)

Appropriate maps, drawings, plates, etc. should be provided that are pertinent to the revision, or amendment of mining operations. Please provide a revised map outlining the previously approved and the new proposed disturbed area boundaries. These materials should be prepared according to the requirements of Rule R647-4-105.

List map numbers or appendices used for this section: See Appendix 1 Maps 1-4 & photos 1-4

III. OPERATION PLAN (Rule R647-4-106)

Provide a narrative description, referencing any appropriate attached maps or drawings, of the pertinent details of the proposed change(s) in the operating plan. Specific details which are different from those described in the original approved NOI should be included. Identify additional proposed surface disturbance. Include the total number of acres to be affected by the revision or amendment. All appropriate information requirements as outlined under Rule R647-4-106 must be addressed in the application.

A buff burning fireclay bed 7-30 ft. thick is mined. The bed is mined in a North to South direction on an approximate 10% grade. On top of the clay bed is a bed of limestone approximately 0-15 ft. thick. This is blasted and removed so the clay can be removed. Clay is stockpiled on site until being transported to Interstate Brick (no on-site processing). Three materials are stockpiled: topsoil, limestone rock, and clay. Topsoil in this area is estimated to be about 3-6 inches thick, with a subsoil ranging from 11-60 inches in depth. The limestone bed was blasted and loosened in 1993. There remains approximately 2 acres of the '94 blasting left to be mined, which is estimated to be about 3 years of clay reserves. Another 2 years of reserves is estimated in the exposed clay seam. At the end of this 5 years Interstate will either cease mining in this location and do final reclamation or seek to blast again and advance the clay face southward (without requiring a change in the permit boundary). No standing water exists in this area and dept to groundwater is unknown. No further disturbance is anticipated in the next 5 years. **See Appendix photos 1-4 of existing mine and Appendix Maps 2 and 4 for Mine plan.**

106.4- Existing soil types, location and amount

The soil materials in the expanded area are similar to those in the previously permitted areas, as there are only two main soil types in the vicinity (please see Appendix III for a full description of the soils in the area and test results of soil stockpiles). Appendix I, Map II depicts the location of soil and waste rock piles that will be used for reclamation activities. Growth media stockpiles consist of a total of approximately 55,000 cubic yards, and waste rock piles consist of a total of 80,000 cubic yards.

106.5- Plan for protecting and redepositing soil

The 1994 plan states that soil stockpiles that lie idle for a year or more would be seeded to protect the soil from excessive erosion. It is not believed that ~~To date, no~~ any seeding has

been done at least within the pit area. The stockpiles that shall remain at the site will be seeded with the mixture provided below. Attempts to protect the stockpiles from ATVs will be made by placing rocks at the bases of the piles and through signs posted in the area. In addition, Interstate Brick is currently in negotiation with the BLM on a joint land manangement arrangement. Probable result of this will be BLM enforcement of no tressspassing on most of Interstate's mine property in return for a designated right-of-way through Interstate's property that would allow access to a BLM managed ATV/off road area.

Seed mix for stockpiled topsoil:

30% Great Basin wildrye (*Elymus cinereus*)

20% Bottlebrush squirreltail (*Elymus elymoides*)

30% Intermediate wheatgrass (*Agropyron intermedium*)

20% Small burnet (*Sanguisorba minor*)

The seed shall be broadcast in the fall to remaining stockpiles at a rate of 15 PLS lbs/acre after reducing slope angles and ripping the soil surface.

106.6- Existing vegetation- species and amount.

Please see Appendix III for information on the existing vegetation communities at the site. This vegetation survey was completed in June of 2003.

IV. IMPACT ASSESSMENT (Rule R647-4-109)

Please provide information as required under Rule R647-4-109 regarding projected potential surface and/or subsurface impacts that may be associated with the proposed change(s) in mining operations.

No groundwater has been encountered at this location and very little if any impact on surface water drainage has occurred and would occur as a result of future mining activity. There is no impact to any threatened and/or endangered (T&E) species as no T&E plant or animal species were found at the site (BLM, 2000). The natural vegetation disturbed by this mining is a sagebrush shrubland. ~~There is believed to be no impact to any threatened animal species or their habitat. The natural vegetation disturbed by this mining is sagebrush and smaller low growing plants~~. Interstate intends to cover the disturbed area with growth medium ~~topsoil~~ material stockpiled on site, re-seed the ~~effected~~ affected areas with an appropriate seed mixture **See Appendix II**, and practice weed control if necessary to allow native plants to reestablish ~~themselves~~. Of the past clay mines in this area, this particular mine is shallow in comparison because the clay bed in this spot is nearer to horizontal. Therefore no deep holes with steep sides are expected. **See Appendix I photos 1-4 and Maps 2-4.**

V. RECLAMATION PLAN (Rule R647-4-110)

Describe how you intend to stabilize the disturbed areas upon cessation of operations. This includes backfilling excavations, grading, sloping or contouring, permanent stabilization of slopes or roads, permanent closure of roads, removal of structures and improvements, etc. Provide cross section of the proposed final contour of the land after reclamation.

Please outline any proposed changes to the originally approved reclamation plan. Appropriate sections of Rule R647-4-110 must be addressed as they may apply to the proposed change(s) in mining operations.

Reclamation Plan

110-1-Current and post mining land use

Five mile pass is presently a high ATV use area. ~~A Bureau of Land Management (BLM) sanctioned ATV trail runs directly adjacent to IB property and~~ IB property often receives some 'stray' ATV traffic. The BLM has completed an Environmental Assessment (UT-020-98-14) to determine whether the ATV use can be expanded in this area including the 5 Mile mine property. The EA also includes alternatives that leave the area as is, to continue to use the area for some recreational purposes, but some areas will be reserved for wildlife habitat. IB will be interested in close cooperation with the BLM to create the most appropriate post mining land use for this area. At this time ~~Until the BLM approaches IB regarding this property,~~ IB will reclaim the area for wildlife habitat. Everything outside the permit boundary is pre-law (the green outline in Appendix I, Map 3) and will not require any further reclamation.

110-2 – Manner and extent of reclamation

Reclamation shall be consistent with the post mining land use - to create wildlife habitat suitable for indigenous species. Shallow sloped areas (including closed roads) shall have at least 70% of the original vegetation cover. After ripping and reseeding, reclaimed roads will be closed by placing rocks as obstructions~~,~~.. Highwalls will first be pushed down into the pit to the degree possible with standard earth moving equipment (D-8 catepillar) and waste rock will then be dumped at the base of the highwalls to create a 45° angle or less. ——

Reclamation of approximately 3 acres will be accomplished on the north side of the pit in the near future (before expanding the current 12 acre pit area) by~~The reclamation plan consists of~~ pushing fill material that has been staged along the north edge of the pit southward~~s~~ into the pit, maintaining the existing 10% grade caused by the mining. The 10,000 CY soil stockpile on the north end of the pit has been tested and the soil appears to be suitable as growth media (see Appendix III 5 Mile North sample results). The areas to be reclaimed shall be covered with approximately 6-8 inches of topsoil, thus requiring 2,420 to 2,904 cubic yards of growth medium for the 3 acres to be reclaimed in the fall (9841 to 12,990 cubic yards of growth media for the entire 12.2 acres of disturbance). If 8 inches of topsoil appears necessary for successful reclamation, some growth media shall be moved from the large stockpile of 18,000 cubic yards on the south side of the pit. Soil conditioners such as bio-solids or a slow release fertilizer shall be used to increase the fertility of the soil, as the stockpiles have been sitting idle with no vegetation cover for a number of years. Biosolids shall be spread at a rate suitable for native plant establishment and growth. Limestone rock from a pile on the southwest side of the pit may ~~may also~~will also be ~~used for fill~~ placed scantily over the growth media to create variable microsites for vegetation establishment. The seed mix proposed for reclamation is in Appendix XX and seeding will always take place in the fall. ~~if it is not sold or used elsewhere for its value as a construction material.~~ The limestone rock pile consists of 18,000 CY of material

use Bio solids of comp. manure need rate ≈ 10 T/A

~~Topsoil from two piles located south of the pit will be spread over the disturbed area approximately 1ft. thick.~~ Remaining ~~rock and~~ soil piles will be graded to a 2:1 slope, soil amendments shall be added if deemed necessary, and ~~with a~~ seeded with the mixture in Appendix II. ~~mixture appropriate for the area~~.

Berms shall be created with waste rock and remaining top soil for public safety. There are no current surface facilities nor any deleterious or acid –forming materials. A cat D8 dozer will do grading. **See Appendix I photos 1-4 of existing mine and Appendix I Maps 2 and 4. See Appendix II for seed mixture.**

Should future additional blasting occur within the permitted mining area, the following measures shall be taken during the design, operations, and closure of the mining operation:

- Surface disturbance will be minimized while optimizing the recovery of mineral resources.
- Fugitive dust emissions from disturbed and exposed surfaces will be controlled.
- Erosion shall be minimized with proper Best Management Practices (BMPs) for the area
- Where suitable as a growth medium, surficial soils and alluvial material will be managed as a topsoil resource ad removed, stockpiled and replaced during reclamation (concurrent with mining operations if possible).

VI. VARIANCE (Rule R647-4-112)

Please identify any requests for variance from the requirements of rules R647-4-107, -108, or -111. A narrative justification must also be included for each variance request. A discussion of any alternate methods or other mitigating measures should be included, if applicable.

None requested.

VII. SURETY (Rule 647-4-113)

Reclamation Surety:
Indicate whether the proposed activities will change the amount of work required to reclaim the mine site. If significant changes will result, then an itemized reclamation cost estimate should be provided (and attached) with direct reference to the specifics of the proposed change(s). This information will be used to assist the Division in determining any reclamation surety adjustments required for the operation.

Activities to date and in the near future are not expected to increase the amount of reclamation that would be inferred from looking at the '94 map. Pushing of fill material over the northern pit edge (along North rim of pit southward), benching the mine face (south rim of pit), covering with approximately 1 ft. of topsoil, and seeding with a seed mixture appropriate to the area is expected to cost $52,800. Work will be performed with 1-Cat D-8 or equivalent for pushing material and spreading, 2 haul trucks (Cat D-400 & 796C or equivalent), and 1 Cat 980 loader or equivalent working 8 hours per day, 5 days per week, for 3 weeks.

VIII. SIGNATURE REQUIREMENT

The application for permit change must include a section similar to the following example:

I hereby certify that the foregoing is true and correct.

_____
Signature of Authorized Officer/Representative:

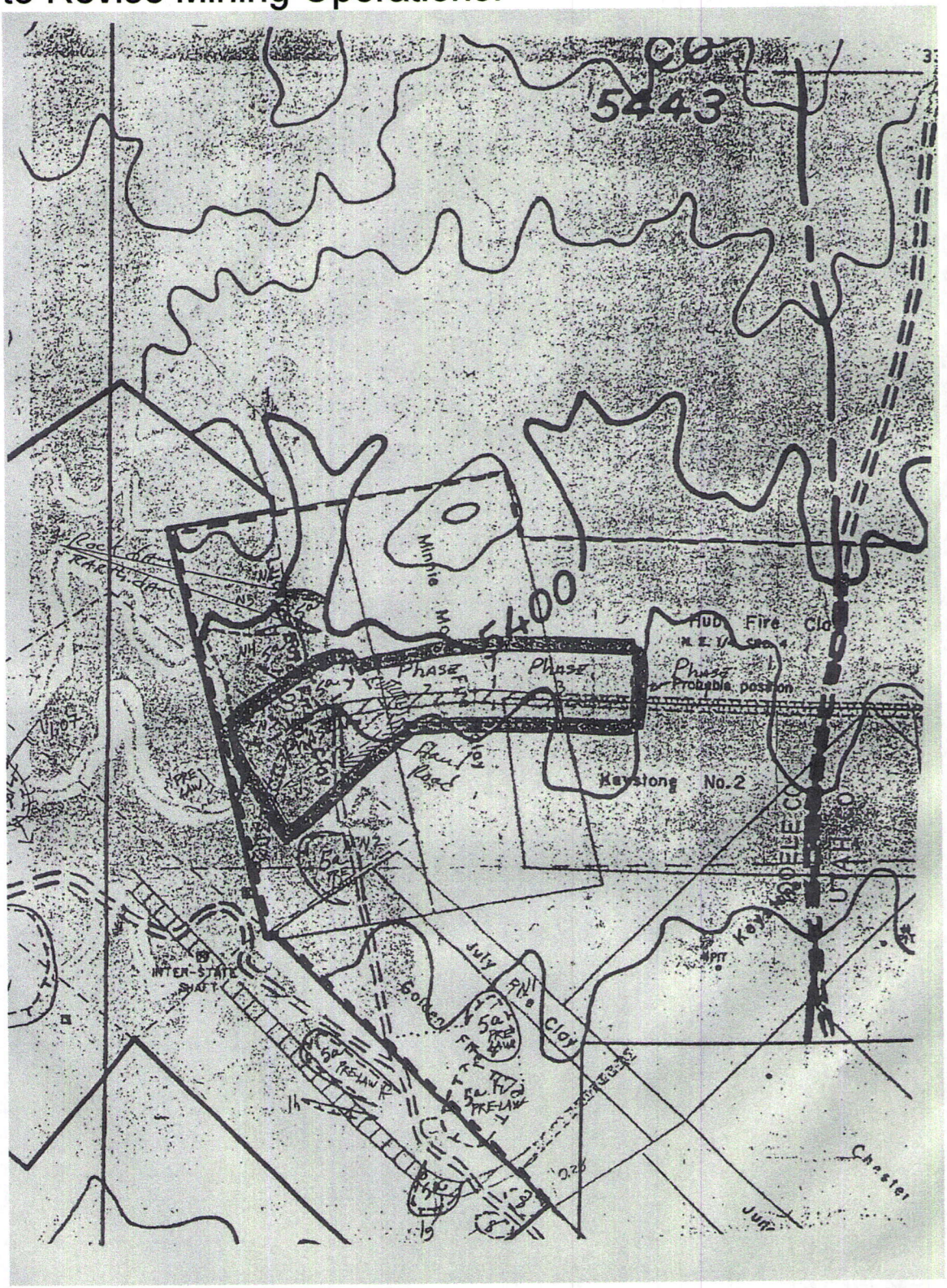
_____
Name (Typed or Print):

_____
Title of Authorized Officer/Representative:

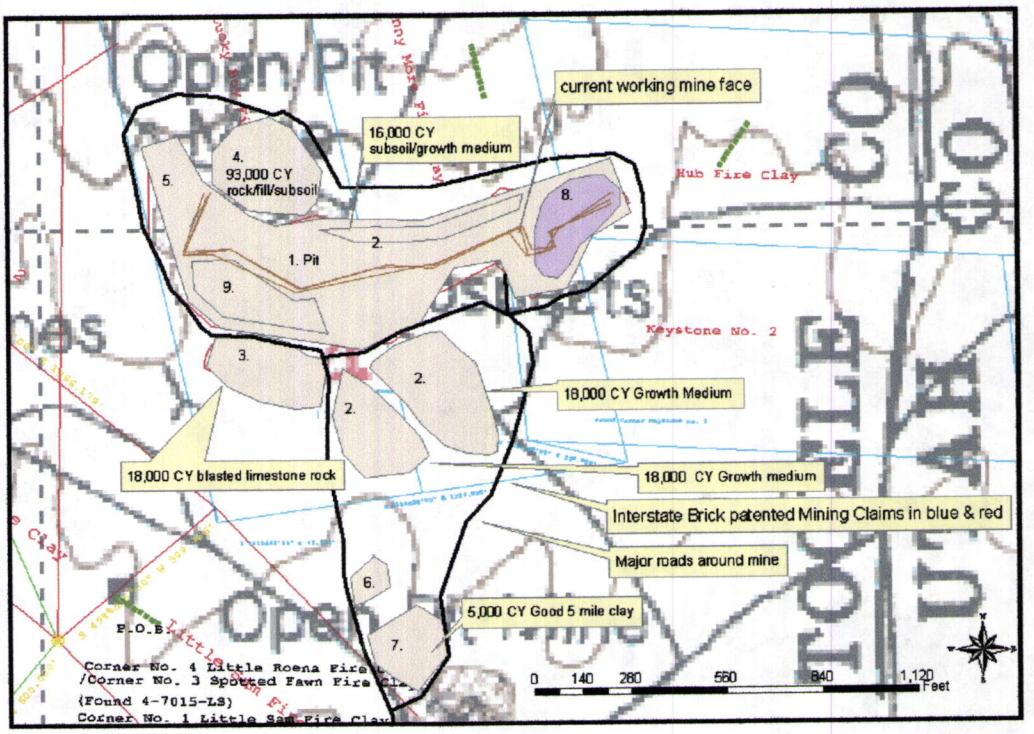
Date:_____

o:\forms\MR-REV

Appendix I.: Map 1: Map from 1994 Notice of Intention to Revise Mining Operations.

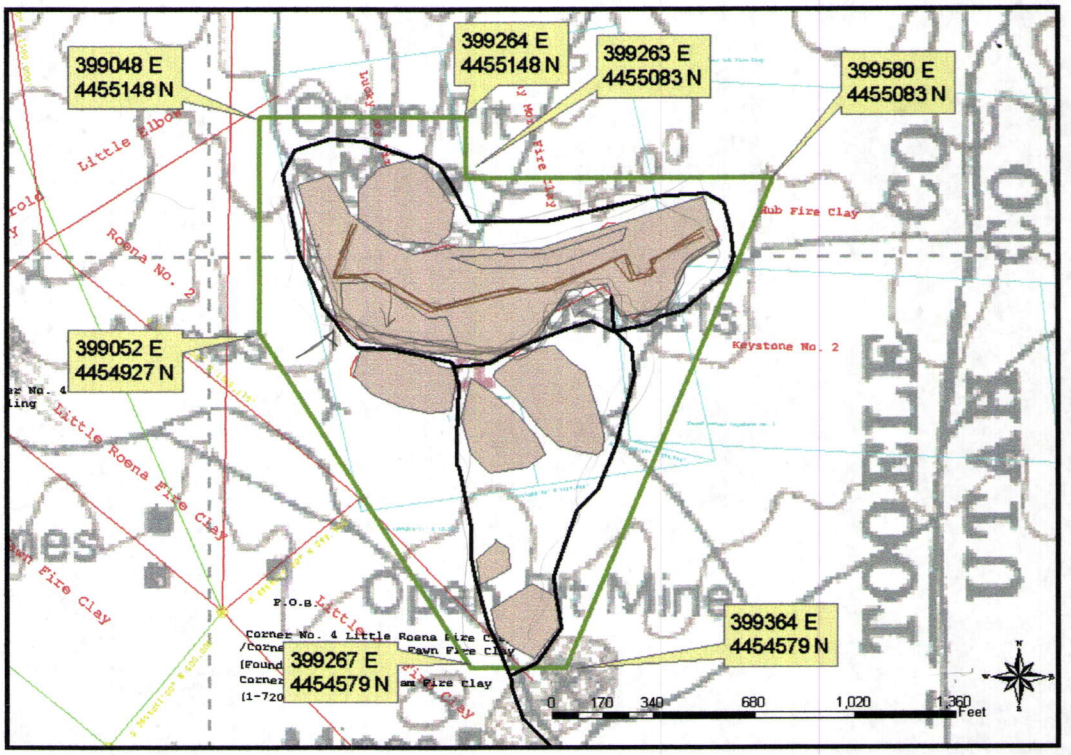


Appendix I.: Map 2: existing mine as of Jan 1 2003.

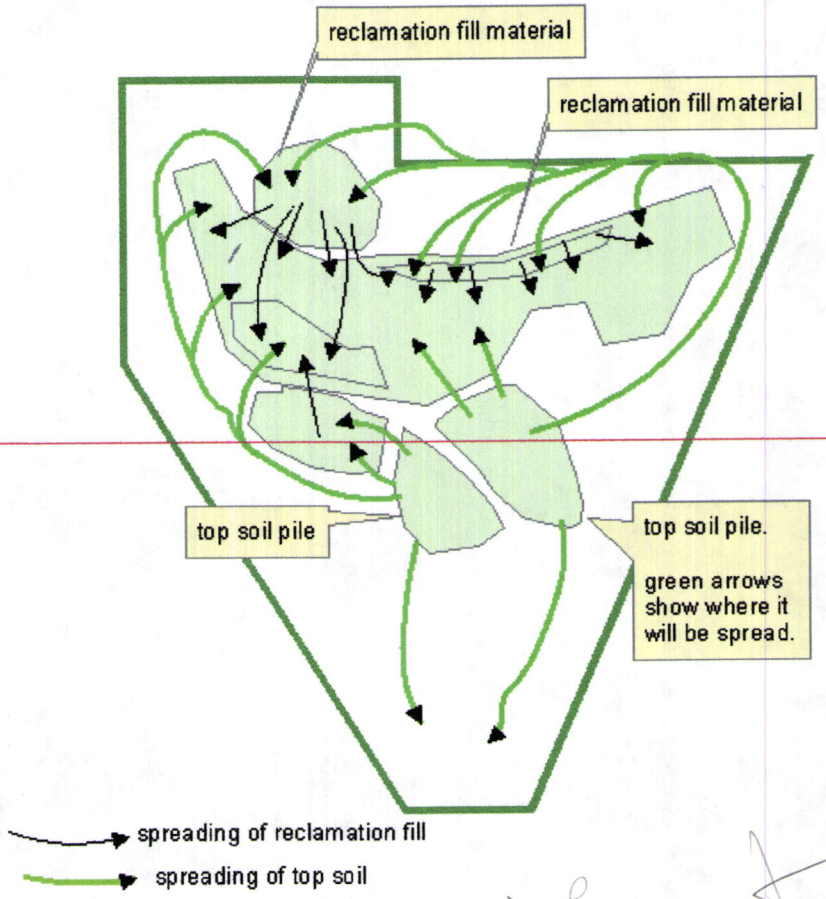


1.	Pit area of disturbance	9.6 acres
2.	Growth Medium ~~Topsoil~~ piles	.7 acres
3.	Limestone "Shot Rock" pile. This pile may be either used for reclamation and/or have value as construction/road building material.	.4 acres
4.	Waste Rock, some of which to be pushed back into pit for reclamation. This pile was put on the north side of the pit so material could be pushed into pit when mining activities are finished.	1.3 acres
5.	Mine face or exposed clay seam (blue line). Approx. 1,400 feet.	1,400 ft.
6.	Clay stockpile mined 2002 "salty 5 mile". "Salty" means alkali impurities in clay near the surface. This is stockpiled separately.	.1 acres
7.	Clay stockpile mined 2002 "good 5 mile"	.7 acres
8.	Area mined in 2002	1.5 acres
9.	Estimated area that has been blasted of limestone, partially stripped, and that will be mined	1.6 acres
10.	(Not shown on map) Old clay stockpile "salty" west of road is South of road. This pile is an old pile from years past. Will be hauled to plant and used in an application that uses a coating on the brick where effects of Alkali salts will not effect the color of the brick. By using "salty" clay in residential coated brick it is intended to stretch the clay reserves of the mine approximately 2 years at current usage rates.	.4 acres
10	(Not shown on map) Old "salty" pile east of road. (Same plan as no. 10.)	.4 acres

Appendix I.: Map 3: New Permit area boundary. 48 acres. Interstate Brick 5 mile Mine.

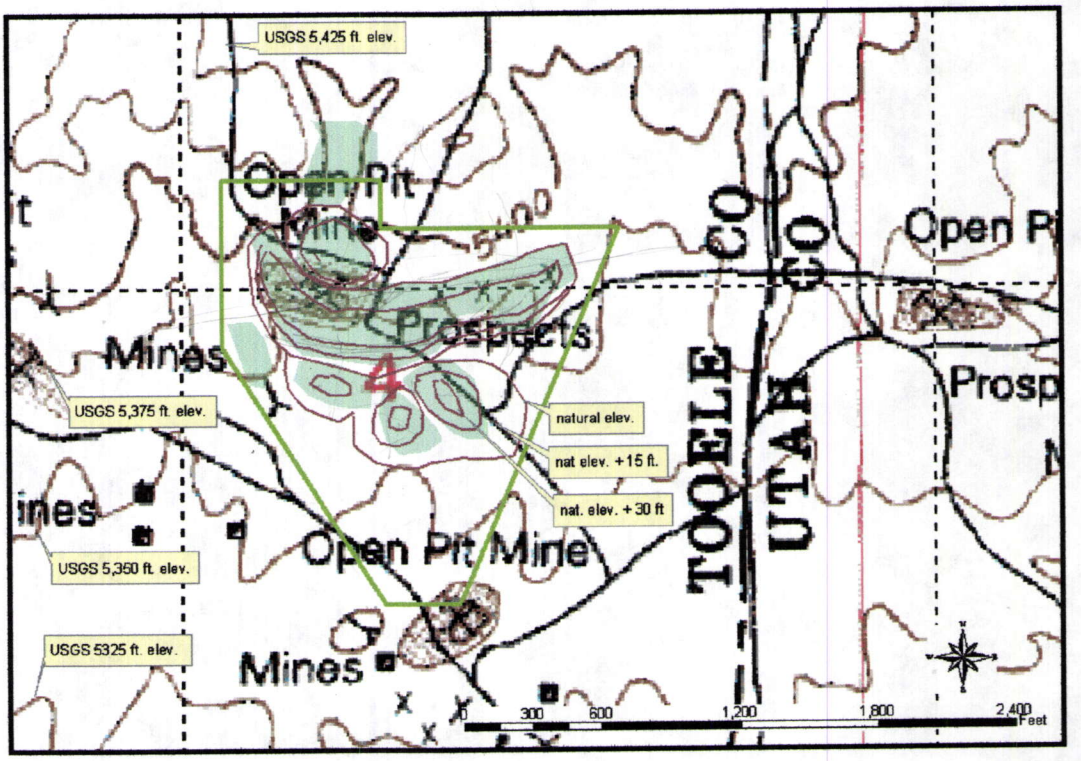


Appendix I.: Map 4: Interstate Brick Five Mile Mine Reclamation Plan.

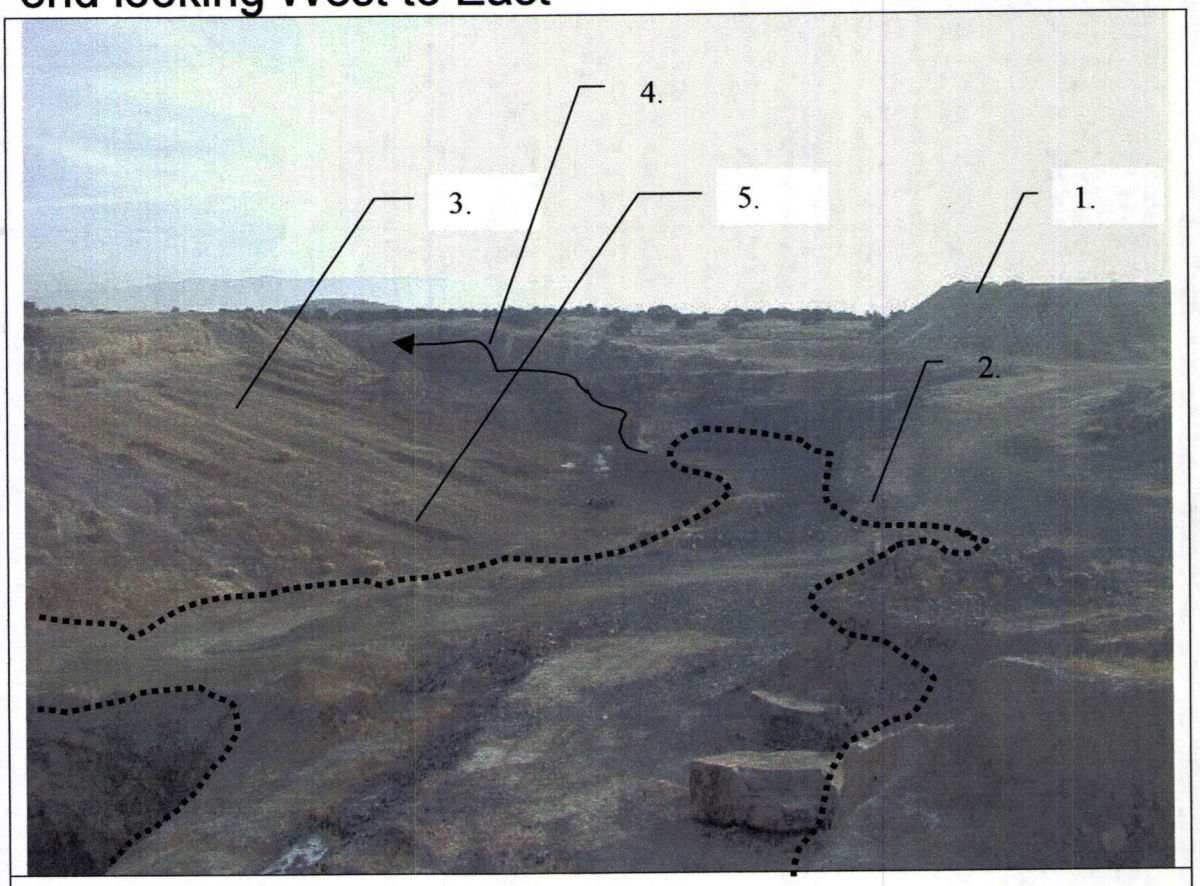


To be taken out

Appendix I.: Map 4: Interstate Brick Five Mile Mine Final Contours of post reclamation.



Appendix I.: Photo 1: View of Pit looking from West end looking West to East



1. Main topsoil pile for reclamation shown in (upper right side in photo).

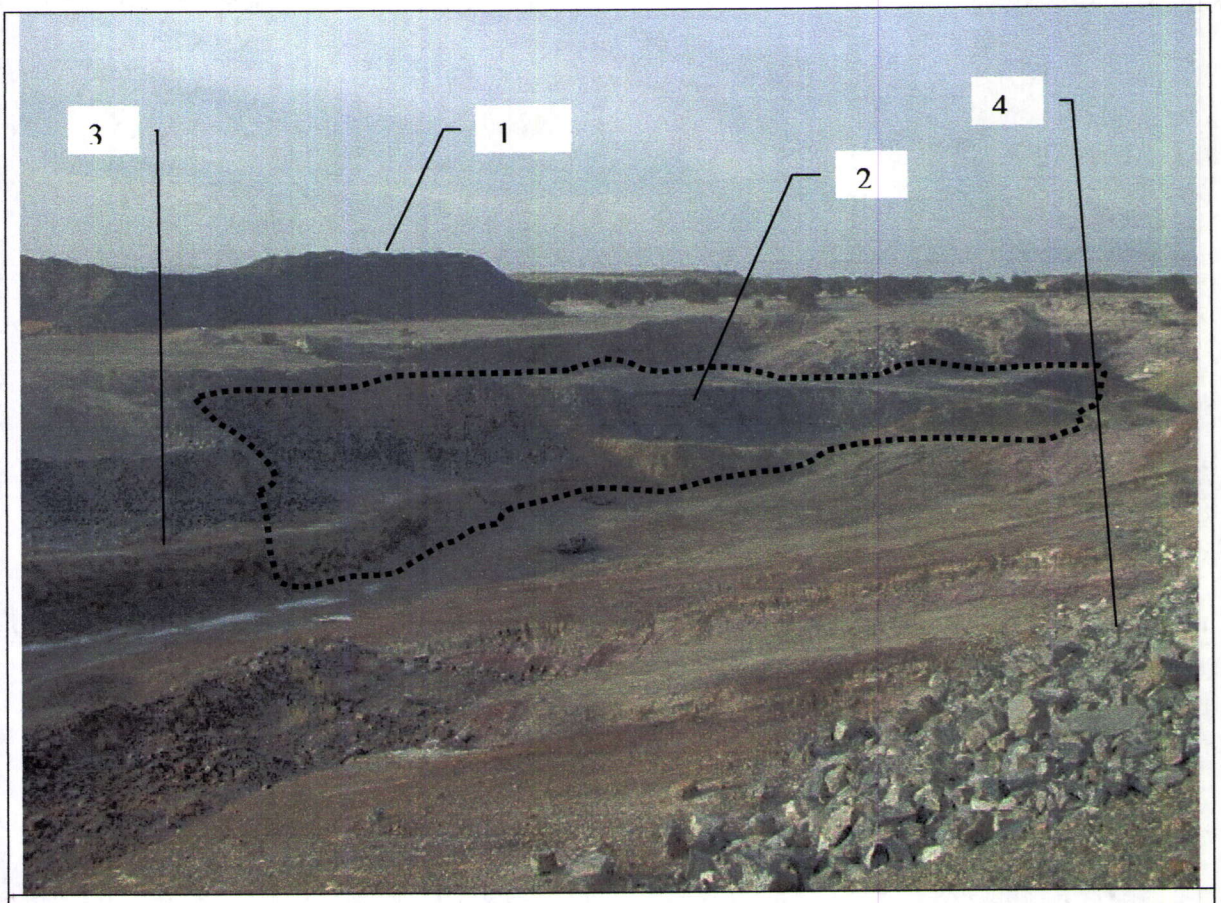
2. (Area within dotted lines): Remaining area left from the blasting of the limestone in 1993 in which the clay has not been removed. Parts of this area have been totally stripped, parts partially stripped, and parts are covered with loose limestone that has to be removed prior to mining clay. Estimate roughly 50,000 tons of clay contained in this un-mined section, or 3 years of clay at current usage. Next mining will take place here. This is the Southwestern end of the pit.

3. The back wall or footwall, which runs at this fairly shallow angle. Some material from Reclamation material from pile no. 4 (not shown-see map 2) and topsoil piles 2 (note no. 1 this photo-see map 2) will be spread over this prior to seeding.

4. Exposed clay seam that extends to the East. Area 2 is estimated to hold 3 years of clay reserves @ 15K tpy usage. The rest of the exposed clay seam is estimated to hold 2 years of clay.

5. Possible remains of old underground mine tunnels from Utah Fire Clay.

Appendix I.: Photo 2: View from about middle of pit looking East to West



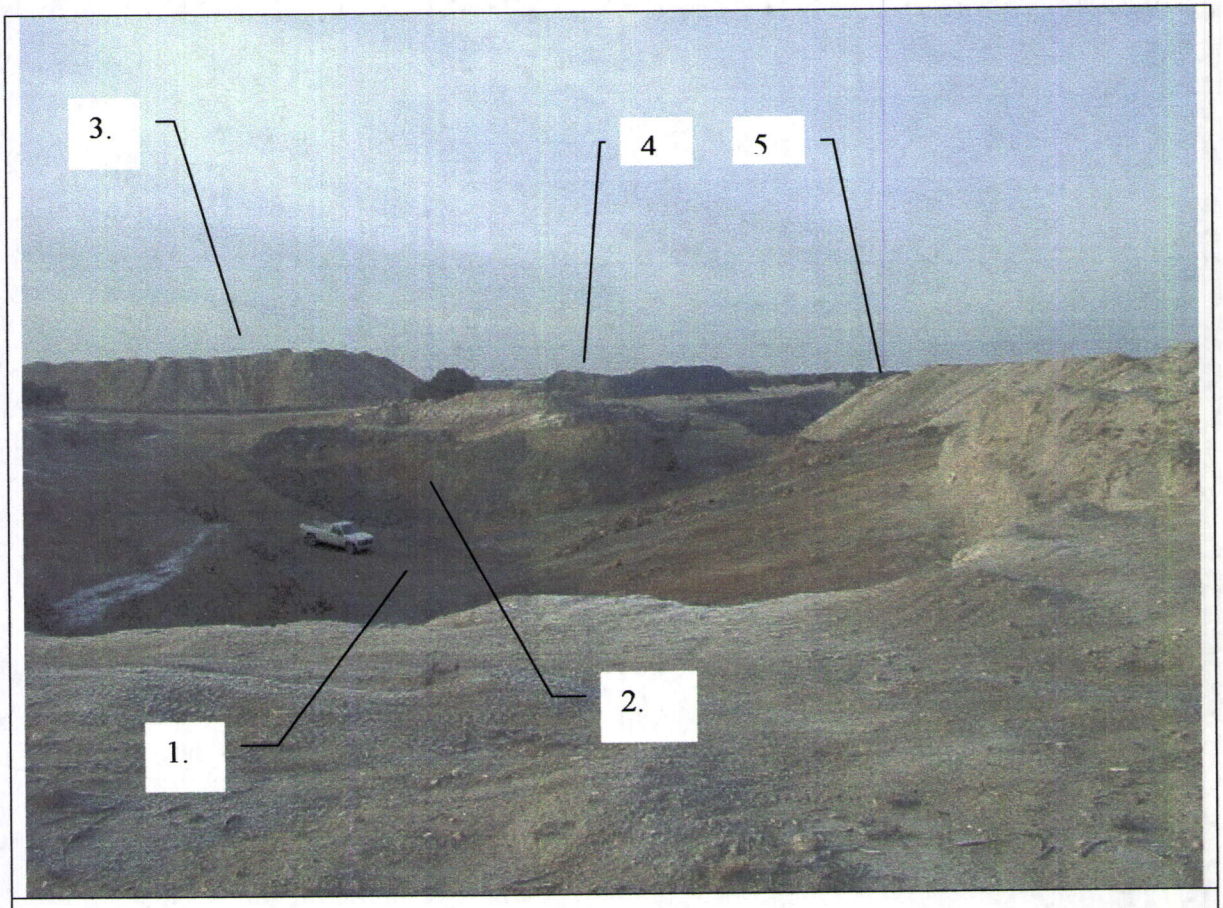
1. Pile of "shot rock" or blasted limestone that was removed. This material may be used for reclamation and/or may have value for road base material.

2. (Area within dotted lines): Remaining area left from the blasting of the limestone in 1993 in which the clay has not been removed. Parts of this area have been totally stripped, parts partially stripped, and parts have loose limestone, which has to be removed prior to mining clay. Estimate roughly 50,000 tons of clay contained in this un-mined section. Next mining will take place here. This is the Southwestern end of the pit.

3. Exposed clay seam.

4. Material put at north end of pit ready to be pushed over the footwall and coated with growth medium ~~topsoil~~ for reclamation.

Appendix I.: Photo 3: View from far East end of pit looking West (can see to about the middle of the pit).



1. Area of mining that took place in 2002. There was no overlying bed of limestone covering the clay at this end of the pit. This corresponds to "Phase 3" of the '94 mining plan (see Appendix 1, Map 1). About 25,000 tons of clay was mined from the rectangular area. Some mining had taken place in previous years in this spot. Probably no further mining will proceed to the south along this seam because it appears to dive at steeper angle into the ground.

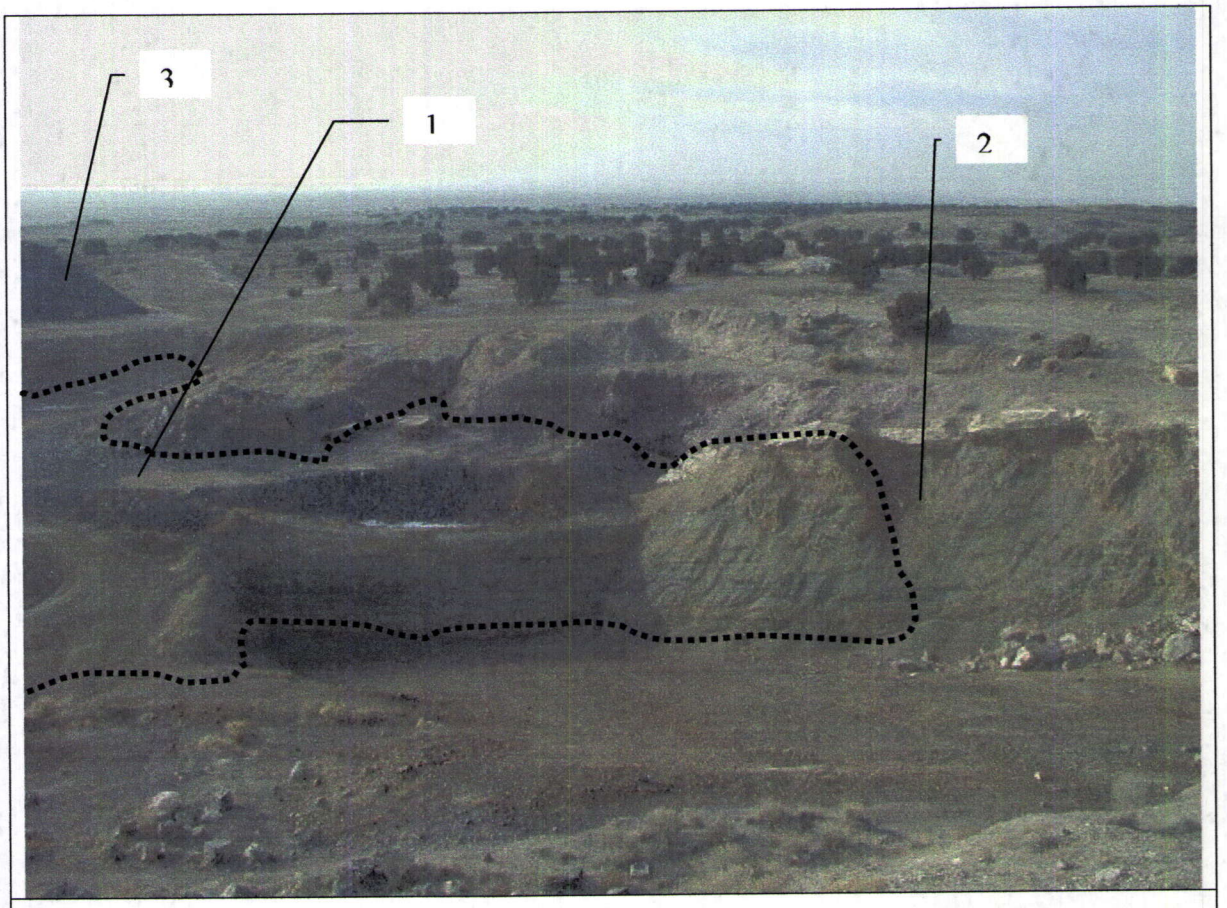
2. Exposed clay seam.

3. Growth Medium ~~Topsoil~~ pile for reclamation.

4. "Shot rock pile" at west end of pit.

5. Stripped material staged along north rim of pit ready to be pushed into pit for final reclamation.

Appendix I.: Photo 4: View of West end of pit looking Southwest



1. (Area within dotted lines): Remaining area left from the blasting of the limestone in 1993 in which the clay has not been removed. Parts of this area have been totally stripped, parts partially stripped, and parts have loose limestone that has to be removed prior to mining clay. Estimate roughly 50,000 tons of clay contained in this un-mined section. Next mining will take place here.

2. This is the Southwestern end of the pit. Exposed clay seam after it turns to the North. Possible future expansion Seam is very thick at this point, but mixed with rock. Questionable quality. Also right against the claim boundary.

3. "Shot rock pile" at west end of pit.

Appendix I.: Photo 5: View from middle of pit looking east.

1. Clay Layer (about 15ft thick at this point-note person in center of photo for scale). Shows typical 5 Mile Mine configuration; a gently sloping bed of clay beneath a bed of Limestone (seen in this photo as loosened from blasting). This Clay seam may either be mined further in towards the South (left in photo) by further removal of limestone that probably will require more blasting, or removed and the face benched for final reclamation. This clay would be mined after the clay that still remains beneath the area that was blasted in 1994. Estimate the exposed clay along the face to be 2 years worth of reserves as is without stripping. This would be mined after the clay in the Southwest end of the pit is removed.

2. Piled up material along the East end of the pit that serves as a safety berm.

~~Appendix I.: Photo 6: Natural vegetation at 5 mile.~~

To be removed see other work

Appendix II.: Seed Mixture to be used for reclamation.

Common Name	Species Name	*Rate lbs/ac (PLS)
~~Intermediate~~ Bluebunch wheatgrass	Agropyron ~~intermedium~~spicatum	~~2~~3.0
~~Piute orchard grass~~	~~Dactylis glomerata~~	~~1.0~~
Great basin wildrye	Elymus cinereus	2.5
Indian rice grass	Oryzopsis Hymenoides	~~2~~3.0
~~Ladak Alfalfa~~	~~Medicago sativa~~	~~1.5~~
Yellow sweetclover	Melilotus officinalis	0.5
Small burnet	Sanguisorba minor	2.~~0~~5
~~Mountain big~~Black sagebrush	Artemisia ~~tridentate vaseyana~~nova	0.2
~~4-Wing Saltbush~~Shadscale	Atriplex ~~canescens~~confertifolia	1.5
Rubber rabbibrush	Chrysothamnus nauseosus	0.5
Forage kochia	Kochia prostrata	0.5

Total 14.2 lbs/acre

- Recommended broadcast seeding rate. If species are drill seeded, decrease rate by 1/3.

Appendix III: Baseline Soil and Vegetation Assessment

Interstate Brick
Vegetation and Soil Baseline Assessment

5 Mile Mine

Prepared for:
Interstate Brick
9780 South 5200 West
West Jordan, UT 84088-5625

Prepared by:
WP Natural Resource Consulting, LLC

PO Box 520604
SLC, UT 84152
(801) 699-5459

INTRODUCTION

Interstate Brick has been requested to amend a Notice of Intention (NOI) to Revise Mining Operations for their 5 Mile Mine in Tooele County, Township 7S, Range 3W, section 4. The purpose of this amendment is to provide a clearer understanding of Interstate Brick's mining and reclamation plan in this area for the next 5 years. The purpose of this section of the report is to provide a baseline characterization of soils and vegetation according to the requirements of the Utah Oil, Gas and Mining Division requirements as listed on Form MR-LMO. This information will assist in the design of a site appropriate and effective reclamation plan.

SITE DESCRIPTION

The area lies on the eastern boundary of Tooele County along Highway 73 at 5 Mile Pass between the Cedar and Rush Valleys. The area receives between 8 and 12 inches of precipitation annually and slopes are gentle, ranging from 4-15%. The area is dominated by sagebrush species (*Artemisia tridentata* var. *wyomingensis* and *A. nova*) with junipers (*Juniperus osteosperma*) inhabiting the thinner soil of the hilltops in the area. The understory of the area is negligible, likely due to a combination of historic disturbances, ongoing drought, and ATV traffic in the area. The area has poor structure (no understory), low species diversity, good age distribution (of species present), and little to no invasive species.

Figure 1. Typical vegetation at 5 Mile mine.

SOILS

Two soil types are in the area of the 5 Mile mine. The lower lying areas are underlain by Hiko-Peak-Taylorsflat complex (NRCS, 1992). These soils are moderately alkaline (pH 8.2), are relatively deep, well drained, and have relatively good available water capacity (ability to hold moisture for plant use). These soils generally support large stands of Wyoming big sagebrush and perennial grasses. Topsoil depth is generally 4 inches deep, with subsoil depths reaching 60 inches. The Hiko-Peak-Taylorsflat soils are difficult to revegetate mainly due to the low precipitation the area receives. The second soil series is the Spager gravelly loams, which lie on the upper slopes in the area. These soils are highly alkaline (pH 8.7), with 3 inches of topsoil, about 11 inches of subsoil, and a caliche layer (an accumulation of calcium carbonate that is relatively impenetrable by plant roots) at about 20 inches below the surface. The Spager series is very difficult to revegetate given the low precipitation, high pH and the limited rooting depth.

Two soil samples from existing stock piles were sent to the USU soils laboratory to determine pH, EC, CEC, %OM, N, P and K (see Figure X, section X for locations). As expected, the pH is somewhat alkaline (8.1-8.2), moderate salinity (2.5-3.4 mmhos/cm), low organic matter (0.4-0.8%), and low CEC (8.8-11.4 meq/100g).

METHODS

To ascertain the range of variability for vegetation cover, ground cover, and species composition, 3 transects of 50 meters each were established in areas determined to be representative of the vegetation of the area (See Figure 1). Once within a stand of typical vegetation, a pin was spun to randomly determine the azimuth of the transect. Ten (10) quarter square meter (0.25 m^2) plots were placed at 5 meter intervals along the transect. Per cent vegetation cover was estimated in the 0.25 m^2 plot by overall ground cover, species and life form. The per cent cover of litter, bare ground and rock was also estimated in the 0.25 m^2 plot. Various mosses encountered on the ground were included in the litter category. The results of the three transects were then averaged and a standard deviation was determined. Vegetation species that were encountered outside plot boundaries were also recorded.

RESULTS

Each of the variables measured were highly variable indicating the relatively sparse vegetation typical of this area. The combination of the ongoing drought and the various historic and present land disturbances contributes to the current condition of the vegetation communities.

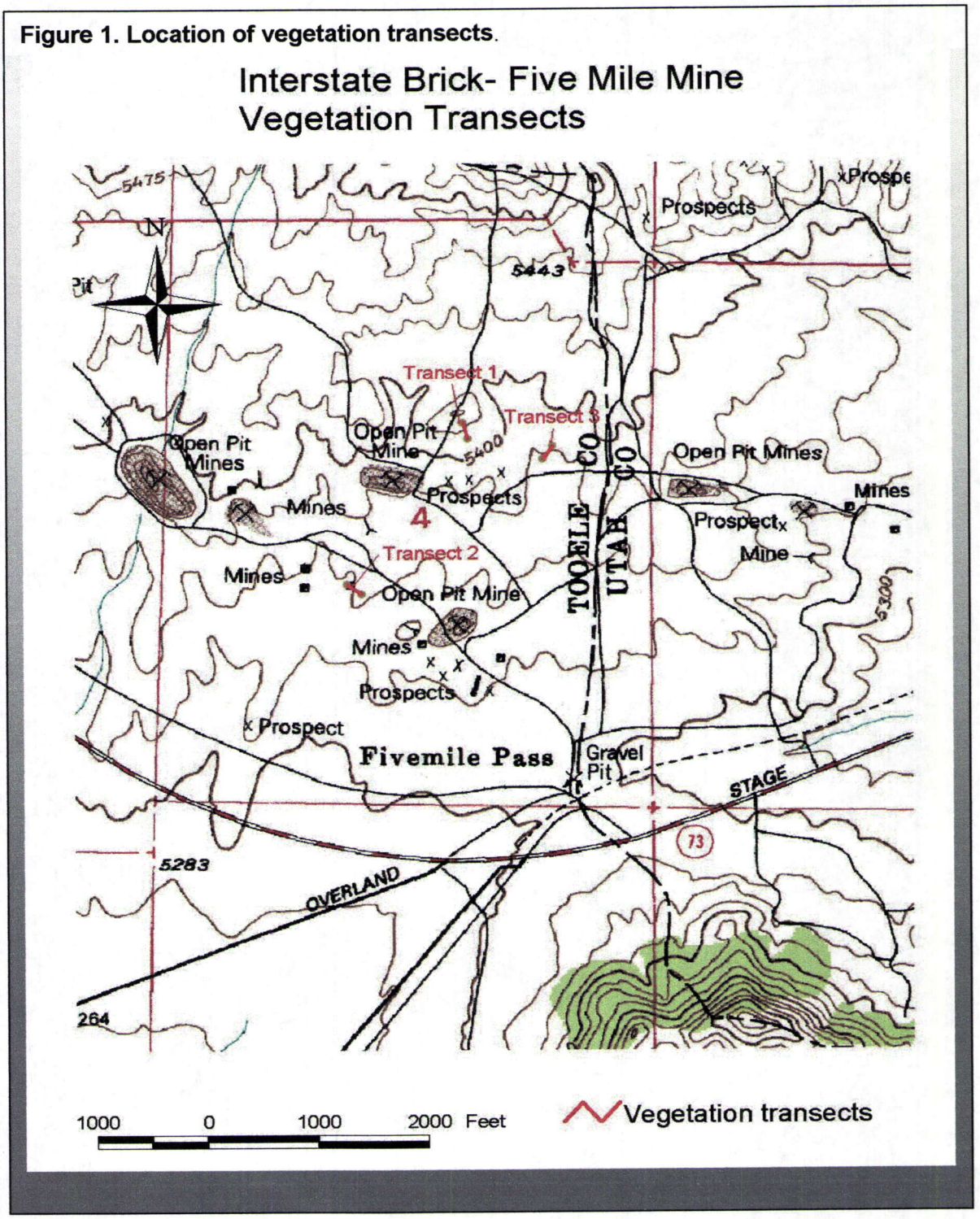
Transect 1- The first transect lies on the Spager gravelly loam and is dominated by black sagebrush (*Artemisia nova*), with lesser amounts of horsebrush (*Tetradymia canescens*), Douglas rabbitbrush (*Chrysothamnus viscidiflorus*), and shadscale (*Atriplex confertifolia*). Grass species that were present but were not encountered with the plots were Indian ricegrass (*Oryzopsis hymenoides*), bluebunch wheatgrass (*Agropyron spicatum*), bottlebrush squirrel tail (*Elymus elymoides*) and needle and thread (*Stipa comata*).

spicatum), bottlebrush squirrel tail (*Elymus elymoides*) and needle and thread (*Stipa comata*).

Vegetation cover was an average of 29% +/- 29%, litter was 11% +/- 8%, gravel was 50% +/- 28% and bare ground was 10% +/- 16%.

Transect 2- This transect is likely on a contact point between the two soil types in the

Figure 1. Location of vegetation transects.

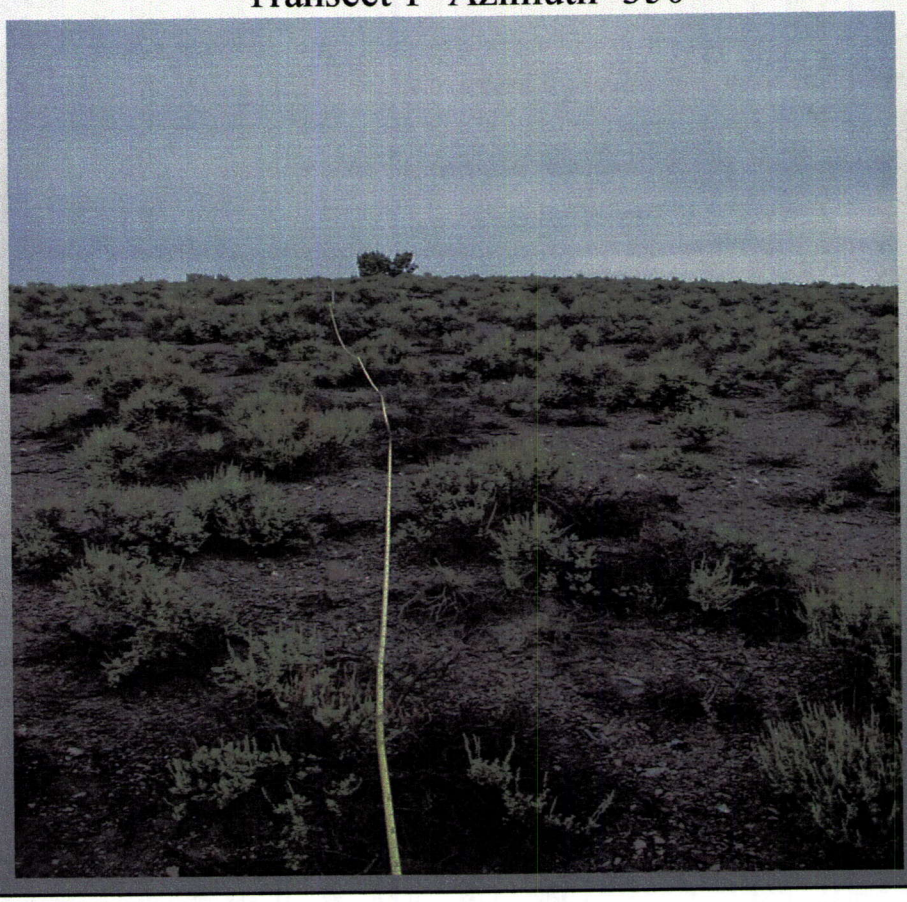


area. The transect is dominated by black sagebrush and Wyoming big sagebrush (*Artemisia tridentate* var. *wyomingensis*). Junipers (*Juniperus osteosperma*) provide a fraction of the vegetation cover on this transect, and gravel and litter were the principal ground cover. Other species encountered in this area were similar to those around transect one, but were more sparse and also included globemallow (*Sphaeralcea coccinea*) and cactus (*Opuntia phaecantha*).

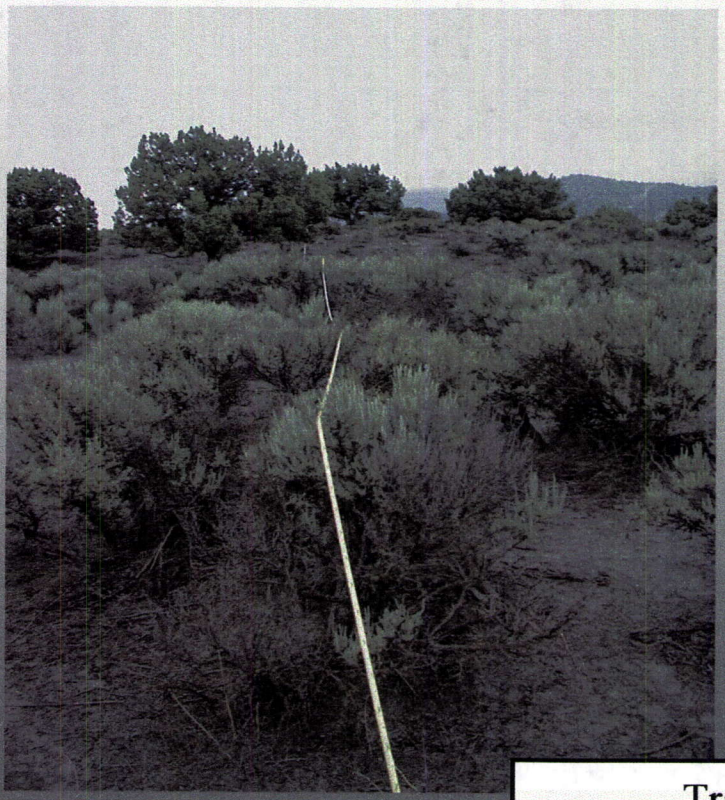
Vegetation cover was 13% +/- 26%, litter was 37% +/- 25%, bare ground was 24% +/- 32% and gravel was 27% +/- 38%.

Transect 3- Transect 3 lies chiefly within the Hiko-Peak-Taylorsflat soils complex and is clearly dominated by Wyoming big sagebrush. Very few other species exist within this area.
Vegetation cover was 15% +/- 19%, litter was 73% +/- 20% (included a significant amount of mosses), and bare ground was 11% +/- 18%. Gravel was not present in this area.

Transect 1- Azimuth- 350°



Transect 2- Azimuth 120°



Transect 3-Azimuth 340°

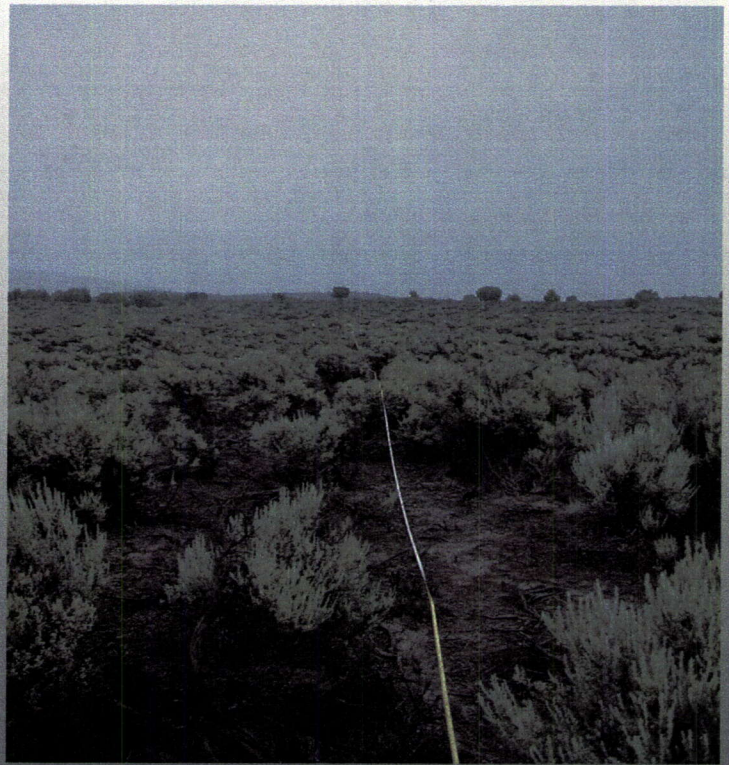


Table 1. Summary of vegetation transects at Five Mile Mine

	Vegetation cover (avg +/- SD) (%)	**Litter (avg +/- SD) (%)**	**Bare soil (avg +/- SD) (%)**	**Rock (or gravel) (avg +/- SD) (%)**	**Soil type**	**Dominant species**
Overall	19 +/- 25	41 +/- 35	15 +/- 24	22 +/- 31	N/A	
Transect 1	29 +/- 29	11 +/- 8	10 +/- 16	50 +/- 28	Spager series	Black sagebrush
Transect 2	13 +/- 26	37 +/- 25	24 +/- 32	27 +/- 38	Spager and Hiko series	Wyoming sagebrush/ Juniper
Transect 3	15 +/- 19	73 +/- 20	11 +/- 18	None	Hiko series	Wyoming sagebrush

REFERENCES

Salt Lake Field Office, Bureau of Land Management, 2000. Fivemile Pass Special Recreation Management Area, Environmental Assessment (UT-020-98-14).

United States Department of Agriculture, Natural Resource Conservation Service, 2000. Soil Survey of Tooele Area, Utah. Tooele County and parts of Box Elder, Davis, and Juab Counties, Utah, and parts of White Pine and Elko Counties, Nevada.

Soil Test Report
and
Fertilizer Recommendations

USU Analytical Labs
Utah State University
Logan, Utah 84322-4830
(435) 797-2217
(435) 797-2117 (FAX)

Date Received: 6/26/2003
Date Completed: 7/10/2003

Name: INTERSTATE BRICK CO
Address: 9780 S 5200 W
ATTN FRANKIE
WEST JORDAN UT 84088-5625

Phone: 801-280-5267
County: SALT LAKE

Lab Number: 3011225
Identification: 5 MILE NORTH
Crop to be Grown: Reclamation

Grower's Comments: material stuged along NE side of pit

Acres in Field:

Soil Test Results			Interpretations	Recommendations
Texture		Clay Loam		
pH		8.2	Normal	
Salinity - ECe	dS/m	2.5		
Phosphorus - P	mg/kg	3.9		50-70 lbs P2O5/A
Potassium - K	mg/kg	119		0 lbs K2O/A
Nitrate-Nitrogen - N	mg/kg	5.94		20-50 lbs N/A
Zinc - Zn	mg/kg			
Iron - Fe	mg/kg			
Copper - Cu	mg/kg			
Manganese - Mn	mg/kg			
Sulfate-Sulfur - S	mg/kg			
Organic Matter	%	0.4		
SAR				

Notes
CEC = 8.8 meq/100 g

For further assistance, please see your County Agent --

Soil Test Report
and
Fertilizer Recommendations

USU Analytical Labs
Utah State University
Logan, Utah 84322-4830
(435) 797-2217
(435) 797-2117 (FAX)

Date Received: 6/26/2003
Date Completed: 7/10/2003

Name: INTERSTATE BRICK CO
Address: 9780 S 5200 W
ATTN FRANKIE
WEST JORDAN UT 84088-5625

Phone: 801-280-5267
County: SALT LAKE

Lab Number: 3011226
Identification: 5 MILE SOUTH
Crop to be Grown: Reclamation

Grower's Comments: from regrowth medium piles south of pit.

Acres in Field:

Soil Test Results			Interpretations	Recommendations
Texture		Clay Loam		
pH		8.1	Normal	
Salinity - ECe	dS/m	3.4		
Phosphorus - P	mg/kg	4.1		35-55 lbs P2O5/A
Potassium - K	mg/kg	174		0 lbs K2O/A
Nitrate-Nitrogen - N	mg/kg	10.5		0-20 lbs N?A
Zinc - Zn	mg/kg			
Iron - Fe	mg/kg			
Copper - Cu	mg/kg			
Manganese - Mn	mg/kg			
Sulfate-Sulfur - S	mg/kg			
Organic Matter	%	0.8		
SAR				

Notes
CEC=11.4 meq/100 g

For further assistance, please see your County Agent --